

Claims

1. Self-closing valve for the dispensing of flowable media from a container having

a curved membrane, the curvature of which is directed toward the flowable media in the closed position and which curves outwardly into a dispensing position upon pressure being generated in the container,

a support segment which holds the valve to said container,

a connecting wall arranged between said membrane and said support segment,

a slitting provided in said membrane which opens in the dispensing position, wherein said slitting is arranged such that upon the deformation of the membrane from the closed position to the dispensing position induced by the application of pressure to the container, elastic resilient forces are generated within the membrane which cause said membrane to retract from said dispensing position to said closed position upon depressurization, and

said connecting wall between said support segment and said membrane is disposed with an annular section which is arranged substantially in a common plane with said support segment or on a plane which is parallel to same.

2. Self-closing valve in accordance with claim 1, wherein the contact between the connecting wall and the membrane is configured such that substantially no or only minimal torque is transferred from said connecting wall to said membrane so that any torque transmitted from said connecting wall to said membrane has substantially no effect on the opening and closing of said slitting.
3. Self-closing valve in accordance with claim 2, wherein the transition zone between connecting wall and membrane is configured in hinge-like manner.
4. Self-closing valve in accordance with at least one of claims 1 - 3, wherein said membrane and said connecting wall are configured to be substantially rotationally symmetric.
5. Self-closing valve in accordance with at least one of claims 1 - 4, wherein
an area (52b) is adjoined to said annular section of connecting wall (52), said area extending at an obtuse angle from the plane of the support segment and the annular section.
6. Self-closing valve in accordance with at least one of claims 1 - 5, wherein said membrane has a peripheral wall directed substantially to the connecting wall and a contact area is formed on said wall for connecting the membrane with the connecting wall.
7. Self-closing valve in accordance with claim 6, wherein said contact area is formed on a middle region of said peripheral wall such that it is disclosed toward the inner curvature and, when in assembled state, away from the container interior.

8. Self-closing valve in accordance with at least one of claims 1 - 7, wherein said membrane's wall thickness increases from its middle region outwardly, wherein the wall thickness in the outer region and measured parallel to the axis of rotation is preferably double to triple the wall thickness in the middle region.
9. Self-closing valve in accordance with at least one of claims 1 - 8, wherein said slitting is configured such that it has one slit.
10. Self-closing valve in accordance with at least one of claims 1 - 8, wherein
said slitting comprises three slits which are preferably configured so as to be star-shaped and which are preferably arranged at the same angular spacing from one another.
11. Self-closing valve in accordance with at least one of claims 1 - 8, wherein said slitting comprises four, five or more slits which are preferably arranged so as to be star-shaped and which preferably have the same angular spacing from one another.
12. Self-closing valve in accordance with claim 4 and one of claims 9 - 11, wherein
said slitting is configured to be rotationally symmetric to said axis of rotation.
13. Self-closing valve in accordance with at least one of claims 9 - 12, wherein
at least one of said slits is interrupted so as to create a material bridge, whereby the length of said slit

interruption is smaller, preferably substantially smaller, than the total length of the respective slit.

14. Self-closing valve in accordance with at least one of claims 9 - 13, wherein

at least one slit has at least two or more interruptions.

15. Self-closing valve in accordance with at least one of claims 1 - 14, wherein

a reinforcing ring is provided which is made from a harder synthetic material than the material of the membrane.

16. Self-closing valve in accordance with claim 15, wherein said reinforcing ring is configured to be rotationally symmetric in the case of a rotationally symmetric valve body and comprises a plurality of openings in which material of said valve's support segment is present in the final manufactured state.

17. Self-closing valve in accordance with at least one of claims 1 - 16, wherein

said valve body is made from a silicone material.

18. Self-closing valve in accordance with at least one of claims 1 - 16, wherein

said valve body is made from a thermoplastic elastomer.

19. Self-closing valve particularly in accordance with at least one of the preceding claims, wherein said valve is made from thermoplastic elastomer and polypropylene or from silicone and polyamide.

20. Self-closing valve particularly in accordance with at least one of the preceding claims, wherein said membrane

is configured in segmented semi-spherical form and has a substantially constant thickness.

21. Self-closing valve particularly in accordance with at least one of the preceding claims, wherein the valve diameter is substantially at least twice as great as the